Chapter 4

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CHAPTER 4: DEVELOPMENT OF MULTIMEDIA IN FRANCE

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Preliminary note: As the French government has changed just when this paper was written, there could be some modifications to its politics regarding multimedia and the information highways. Even if the new Prime Minister, Lionel Jospin, has announed initiatives in that field in August 1997, this seems to early to explain them in details. This text will then maybe change in the following weeks or months.

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1. Introduction

1.1. Summary Highlights

The development of multimedia in France is influenced by the following factors: the presence of Minitel, the economic and political background of the country, the language and the cultural patrimony and the importance of local and regional actors in the development of multimedia.

1.1.1. The Presence of Minitel

With Minitel, France has an important advance in telematics. Minitel is used in everyday life by almost 23% of the French households. This could have a positive impact on the future development of multimedia applications for different reasons: the presence of telematics in everyday life and the habits of using it, information about services preferred by users, information about the amount users are ready to pay for these services, existing structuration of information from administrations and enterprises.

Minitel could also have negative impacts on the development of multimedia in France because most users seem to be happy with the current development of the technology and are not ready to pay more for the same kind of services on another platform, even a better one.

1.1.2. The Economic and Political Background of the Country

France is an important actor on the European scene. It is quite central geographically speaking but, mainly it is one of the important actors of the European construction. Most important decisions are taken by Germany, France and Great-Britain. France has thus a specific influence on policies developed at the European level.

France has a lot of important industries, either nationalised or private, in the telecom sector, IT supply sector, broadcasting or audiovisual sector for example. These actors do not only conclude alliances on the national level but also on the European or international levels. The presence of such important actors is a positive fact for the development of multimedia as they have enough resources to initiate multimedia projects.

1.1.3. The Language and the Cultural Patrimony

France has an excessively important installed basis in terms of cultural content. This patrimony could be digitalized and proposed all over the World.

But, contrary to the audiovisual sector, France does not seem to have a specific strategy of defence against English-speaking products in the multimedia field. Language does not seem to be a political stake and if the defence of French is said to be important, concrete effects on multimedia developments are not clear like it is the case in other French-speaking countries or regions like Québec for instance. France seems to have a reactive attitude rather than a proactive attitude concerning the defence of its culture and language, maybe because French people consider that their patrimony, culture and language are not in danger in the multimedia field. An assumption which is maybe wrong.

1.1.4. Public Initiative

For the development of Minitel, the government has been one of the main initiators through DGT, *Direction Générale des Télécommunications*, under the coordination of the Ministry of Industry. It also tries to make a similar initiative for the cable infrastructure (*Plan

Câble) but this has been a failure. However, concerning multimedia development, the government does not take central initiatives maybe because the market seems to be mature enough, perhaps because of funding restriction as in most others countries. Most initiatives are thus taken at the regional or local level with the risk of unequal development between French regions.

The French government seems to be concretely involved only in education and culture mainly through the coordination of initiatives.

1.2. National Image of Multimedia

Like in Belgium, multimedia in France seems mainly to mean on-line developments and mostly Internet. CD-Rom, due to the law equipment level of the households, is not really the favourite platform for multimedia developments.

Concerning infrastructure, apart from the traditional telecom networks and the increasing competition on that field with the traditional operator, France Télécom, and newcomers, the satellite option seems to gain more and more importance in comparison with the cable possibility. Consequently, multimedia is also perceived as the increasing offer of digital bouquets.

At the level of content, and even if the CD-Rom about the famous museum, *Le Louvre*, is a best-seller, the fabulous French patrimony is very little exploited with the risk of being used - and sold - by foreign companies.

2. National Context

2.1. Geographical Situation

Table 1: Geographical and Geo-Political Indicators

Size (km2)	547 000
Population (mio)	57.96
Population Density (94)	107
Cultural and linguistic divisions	Regional dialects Nationalist moves
Location in Europe	Central

Source: L'Etat du Monde 1997 - annuaire économique et géopolitique mondial, Editions la Découverte, Paris.

France is the biggest country of the European Union with 547 026 km2 and almost 60 millions of citizens with a relatively low population density (a bit higher than 100 inhabitants per km2). It is centrally located at the heart of Europe and welcomes 'the other' European capital, Strasbourg. France also has overseas departments like the French Guyana, Martinique, Guadeloupe, Réunion and the West Indies.

There is one official language, French, even if there are regional dialects (Breton, Catalan, Corsican, Occitan, Basque, Alsatian, Flemish) but not very much developed, except in some of these regions, like Corsica or the Basque country, which also suffer from quite violent nationalist moves.

2.2. Political Background

Introduction
France is a parliamentary democracy coupled with a presidential power (Jacques Chirac, from the RPR (1), a right-wing party, succeeded to François Mitterand, from the socialist party, in May 1995).

France is divided into regions (22) and departments (96 metropolitan and 5 overseas). Departments are divided into arrondissements, cantons and communes, the smallest territorial division. At the regional level, the power is exerted by the regional council (*Conseil Régional*) and its president. At the level of the department, it is the general council (*Conseil Général*) and at the commune level, it is the town or local council and the mayor (*Conseil municipal*). All these councils are elected by universal suffrage.

Usually, France has a tradition of centralisation of all decisions and initiatives. Since 1982 and mostly since 1992, departments and regions are taking more and more autonomy concerning economic development, mainly through pragmatic actions adapted to local or regional needs. But most important decisions are still taken on a centralised way.

2.2.1. Politics and Multimedia

According to Cédric Curtil, author of '*La carte française des inforoutes*', telematics in France is a mature market and the national government has no major role to play anymore for the development of such market. That is the reason why most initiatives in multimedia and information highways are taken at a decentralised level (regional or local).

This is also probably due to the recurrent problem of public funding and to the fact that there are few public funding available for this kind of investment. The budget and the public initiatives are thus decentralised and depend on the financial capacity and political will of the town, the district, the department or the region.

But it does not mean that the government does not consider multimedia and information highways as a priority. In fact, after having asked for two general studies on the subject (2), it has defined some basic principles and means that are sometimes implemented by specific laws.
These basic principles are:

- *'rely on the market and on investment capabilities of all the economic actors;*
- *give to the State, through applications of public interests (health, training, research, ...) a leading role to initialise market development;*
- *sustain the development of services and help the diffusion of their usage and of infrastructure;*
- *facilitate SME's access to these services'* (3).

In order to reach these objectives, the State defines different means:

- *'to launch in Autumn 94 a call for proposals to stimulate the market,*
- *to develop new services and contents;*
- *to incite an optimal use of existing networks taking into account the important delays for the development of high speed networks;*
- *to participate actively in projects at the Commission level and at an international level;*
- *to organise meetings, forums and thematic workshops'* (4).

2.3. Economic and Technological Background

Table 2: Economic and Technological Indicators

Economic Indicators	
GDP/capita (US$) (95)	18 360
Unemployment rate (12/95) (%)	11.7
2nd degree scolarisation (93) (%)	90
3rd degree scolarisation (93) (%)	49.5
R&Dexpenses (% GDP)	2.3
Education expenses (%GDP) (93)	5.8
Technology Indicators	
Home PC penetration (%)	14
% of households with TV	90
% of TV households with cable	7.9
Telephone density	54.7
Number of Internet servers (94)	93 041
Number of Internet connected computers (96)	189 786
Number of Internet users (95)	195 600
Number of Internet users (96)	491 600
Number of Internet users/10.000 hab.	84.81
Number of Minitel terminals	7 Mio
Number of Minitel users	16 Mio

Source: L'Etat du Monde 1997- annuaire économique et géopolitique mondial, Editions La Découverte, Paris - ITU World Telecom Report 95 - KPMG Report for ISPO - IDATE - Miléo Report.

2.3.1. Home and Firms PC penetration

In France, the equipment level of PCs in households is quite small (around 14%). These 14% mostly concerned old equipments not dedicated to multimedia applications. The penetration level for multimedia equipment is even smaller (estimated between 1.5 and 4%). But those last years, multimedia PCs are available in retail distribution (Carrefour, Mammouth, Leclerc, etc.) for a low price and this may have a positive effect on households equipment level but there is no existing survey measuring the impact of this offer.

Specific measures have been taken to boost firms PC equipment like the 2-year amortization term for this kind of investment in stead of 5 years, a measure which, according to GII (press release, 16/02/96) (5), could cr eate a second market for households.

Moreover, according to ISPO (1997b), *'the French government said it would launch before the summer of 1997 a plan to increase the number of PCs in French schools and to connect them to the Internet. It*

would be financed with the support of partnerships between local authorities and industry'.

In consequence and according to the Miléo Report (1996), it seems that the level of equipment of the French households is about to increase quite a lot and could maybe reach a quarter of these households in the year 2000.

2.3.2. The Presence of Minitel

When looking at the equipment level of French households and firms in the telematic domain, one cannot forget the importance of Minitel development (7 millions of terminal, 16 millions of users, 23% of the households (6)) whic h has a specific influence on the development of multimedia applications in France. This is still difficult to know if this influence will be positive or negative but it remains clear that the important installed basis of the Minitel is a critical factor in this development.

It is possible to find at least four positive effects of this situation. The first one, according to Laurent Gille, a French telecom and ICT consultant, is the fact that French individuals and firms are used to employ telematics in the everyday life, at home and at work for a lot of services as shown by exhibit 1. Minitel is part of their life. For Cédric Curtil (1996), the second positive aspect is that service providers do have quite good information about most preferred services and this may help the design and the supply of new multimedia services, perhaps for Information Highways. Studies about Minitel use also reveal the maximum amount that users are ready to put in these kinds of services (almost 100 FF/month (Curtil (1996), p. 92)). Endly, concerning public information, administrations have already structured their information in order to put on Minitel. It would be very easy for them to put it on the Web for example as it begins to be the case, in fact for a lot of Ministries.

Exhibit 1: Type of services consulted by Minitel users in 1994

The "11", the Electronic Directory	92%
Banking services	52%
Transport	42%
Mail Order	37%
Meteo	32%
Spectacles	30.5%
Tourism	30.5%
Administration	25%
Announces	20.5%
Education	18%
Professional Databases	17%
Professional Mail	13%
Stock Exchange	13%
Internal Applications	13%
Sport	12.5%
General Information	12%
Radio and TV	9%
Games/Astrology	8. 5%
Social Action	8%
Press	8%
Information on Products	5%
Anonymous Mail	3%

Source: Adapted from France Télécom, Bilan Minitel de l'année 94.

But there are also negative aspects related to the presence of Minitel since the mid 80's in most French households and firms. According to Curtil (1996), most Minitel users are happy with the technology as developed now. Indeed, most Minitel terminals are still in black and white and not very user-friendly. The speed is really low (1200 bps in one sense, 75 in the other (Curtil, 1996, p. 98))! France Télécom is currently developing new Minitel services with new possibilities: colour terminal, possibility to put a credit card and to pay directly, ... But it seems quite clear that most French Minitel users are not ready to pay more for their current use of this technology but will maybe be happy to have a better technology at the same price.

There are more and more providers of an Internet access from the Minitel and vice-versa. French providers, like France Télécom and the Wanadoo service, have taken into account this matter of fact and propose offers appropriated to the situation but which success is still difficult to assess.

2.3.3. Cable versus Satellite

Maybe due to the extent of the territory and of the difficulty to cable the entire country, cable is not well developed in France (only 7.9% of households which have a TV set). There have been trials to develop the cable infrastructure, mainly the Plan Câble program of the government but this failed for different reasons (Arlandis, Laubenheimer, 1996). According to Cédric Curtil (7), other reasons may explain this low rate: The creation of Canal+ at the same time as the cable offer (*Plan Câble*) but at a more affordable price and for a better offer (more recent movies etc.)

Anyway, this low penetration rate could be an important incentive for the development of a satellite offer. Indeed, there are currently three satellite offers in France (see 3.3.): Canal Satellite, TPS and AB Sat. According to Guy Dutheil (1996a), this seems to be a unique case in Europe. Guy Dutheil (1996b) quotes a recent study from INSEE and CSA emphasising the complementarity of cable and satellite mainly in function of the level of revenue of the households and the place where they live. It seems indeed that satellite will have more chance to be adopted in rural areas and in cities with less than 100.000 inhabitants and in low revenue households. But at the present time (end of 1996) and still according to the INSEE-CSA study, the diffusion of cable as well as satellite is still very limited: 7.3% for the cable and 5.3% for the satellite. However, some households have the two equipments and there will maybe have special initiatives, like *Cybercâble* which will combine satellite and cable possibilities (Cousteau, Vincent and Luques, 1996).

2.3.4. Internet Use

According to the Miléo Report (1996, p. 178), the number of French people connected to Internet from their office, from home or from *cybercafés* has considerably increased between 1995 (195 600 Internet subscriptions) and 1996 (491 600 subscriptions, i.e. a growth rate of more than 150%) and this will most probably continue.

A sign of this increasing interest for Internet could also be seen in the number of magazines dedicated to the subject, on the press as well as on TV.

3. Key Players in Multimedia

3.1. Map of Key Multimedia Players

The following sections introduce the actors present in different sectors. However, most of these actors do appear in different domains: telecom, media, IT supply sector etc. It seems that, in France like in the rest of the industrialised World, multimedia and Information Highways are dominated by some big companies (*France Télécom*, Havas, CGE, Alcatel, *Lagardère Groupe*, ...) with the risk of the control of all the different sectors by only a small number of actors. It appears that there is little place left for small actors and for diversity, except maybe in the Internet area. But, concerning this market, in France like in other countries, it is maybe too early to predict if all these new actors, sometimes very small and with limited technical offers, will persist.

In general, there have been a lot of moves during the last months of 96 in different sectors (IT, telecom, broadcast, satellite, audio-visual) for example with Thomson, Havas-CGE, Canal+ or *France Télécom* and the following months will probably provide new information concerning the development of multimedia in France.

To summarise, the main multimedia players in France are the following:

- *IT Supply Sector*: Alcatel Alsthom, Thomson, Sagem
- *Broadcast Media, Audiovisual and Satellite*: Alcatel Espace, Canal+ (CGE and Havas), TF1, *France Télévision*, AB Productions
- *Telecommunications*: *France Télécom*, CGE, *Bouygues Télécom*, SNCF, *Lagardère Groupe*, Matra communication
- *Press, Edition and Publicity*: Havas, Matra-Hachette
- *Electronic Commerce*: *Club de l'Arche*, Globe Online (*Compagnie Bancaire* and LVMH), AFCEE, *3 Suisses*, *La Redoute*
- *Banking Sector*: *Compagnie Bancaire*, Paribas
- *Education and Research*: RENATER, CNED, Computer Channel
- The government in some sectors (culture, education) and local or regional authorities

  The strategies and activities of these actors will be described in detail in the following points

3.2. IT Supply Sector

Alcatel-Alsthom is an important industrial actor in France. It has developed the telephone network but also a lot of other things like travel boats or the high-speed train (TGV) (Curtil, 1996). Through *Alcatel Télécoms* and its subsidiaries (Alcatel CIT, Alcatel Network System, Alcatel Câble), Alcatel-Alsthom is not only important on the French scene but is number one on the world-wide area (Le Coeur, 1996), mainly because of all its technical competencies. Alcatel is also present in other European markets, in Belgium for instance.

Until 1995, Alcatel-Alsthom also had a multimedia department, *Générale Occidentale* with activities in the edition sector, the distribution and the press (Curtil, 1996). In 1995, *Générale Occidentale* has been bought by Havas, an important French company against 21% shares in Havas' capital.

Thomson, constituted by Thomson CSF (military and professional electronics) and Thomson MultiMedia (TMM) which provides electronics products to the general public, is another important actor of this sector.

Thomson MultiMedia, which has a turnover of FF 36.5 billions, is present on the market of TV (42% of its business - leader of the US market), telephony (13% - number 2 on the US market), components (15%), digital decoder (8% - world-wide leader for satellite decoders), video tape recorder and camcorder (15% - leader of the US market for the video tape recorder) (Nexon, 1996).

This '*SME patchwork*' (Nexon, 1996) with different brands (RCA, Thomson, Brandt, Telefunken, Saba) but no leader brand, is currently mainly owned by the State (76%) and by *France Télécom* (20%).

These last months, there has been a lot of move around Thomson with the government will to privatise this company. But Thomson has a debt of almost 14 milliards of FF (Nexon, 1996) and its market shares, in the TV area for example, are decreasing since some years from 13% in 92 to 9.8% in 96 while the major competitors (Sony, Philips) are increasing (Nexon, 1996). However, several companies were interested by the purchase of Thomson MultiMedia amongst which French companies, mainly Alcatel-Alsthom and *Lagardère Groupe* (Matra) associated to the Corean Daewoo. In October 96, the government announced its preference for the Matra-Daewoo's proposal. *Lagardère Groupe* through Matra was interested by Thomson CSF while Daewoo would take up the activities of TMM. This decision created a chorus of protests mainly due to the low evaluation of the company value, to the fact that this high-tech company will be sold to a foreign society (outside France but also outside Europe) and to other problems. The French privatisation committee then decided in December 96 to freeze the process and to launch a new procedure in 1997 for TMM and Thomson CSF. For this new process, Lagardère (and Matra) seems to be the government favourite for Thomson CSF while at the present time, nothing is clear for TMM (according to Jean-Paul Cadoret (1996), Toshiba, Compaq, Sagem and Bouygues may be interested).

If all this process full of uncertainties ends up rapidly and with several restructuring, Thomson MM could have an important impact on different sectors, mainly on the satellite sector through the provision of digital decoders.

A third important actor is *Sagem*, leader on the market of fax machine. It also produces digital decoders, especially for Canal+, and is mainly doing research on telephones and visiophones. According to Curtil (1996), Sagem could be an important actor for the equipment of the future information highways through its subsidiary, SAT (*Société Anonyme de Télécommunications*), active on the transmission field. Sagem is a very healthy company (Curtil, 1996) and owns a radio and a magazine but its ambitions concerning its expansion in the media sector are not clear.

Lagardère Groupe is another important actor on the IT supply sector but also on other domains, mainly transport, media, military areas, through different subsidiaries. *Matra communication*, an alliance with the Swedish Ericsson, is specialised in terminals and private networks. Nortel Matra Cellular, subsidiary of the Canadian Nortel, ex-Northern Telecom (66%), is providingturnkey mobile networks, for *France Télécom* or *Bouygues Télécom* for example. *Lagardère Groupe* is one of the company interested by Thomson but mainly by the military subsidiary, Thomson CSF. Endly, *Lagardère Groupe*, through *Hachette* is an important actor in the edition field (see 3.5.2.).

3.3. Broadcast Media, Audiovisual and Satellite

The broadcast media sector in France is characterised by one state owned company, France Télévision with two different channels (France 2 and France 3) and by some private companies, the biggest one being TFI owned by Bouygues, the building company, also present on the telecom and the movie sectors. There are also pay-TVs and a cable offer with thematic channels (Canal Jimmy, MCM, Eurosport).

On the field of multimedia, the most important actor is *Canal+*, a subsidiary of Havas and *Compagnie Générale des Eaux* (CGE), the utilities, property and communications group, also present in the telecom

sector. However, the involvement of CGE in Canal+ could change due to the new alliance between Havas and CGE (see below).

Canal+ which exists since 84 is the first private pay TV channel in France. It has several subsidiaries in other European countries (Spain, Belgium, .). The French pay TV channel, counts 3.5 millions of subscribers in 10 years (Breton, 1994). It has a direction for new technologies, is an important movie producer and proposes a digital bouquet since Spring 96 (CanalSatellite), together with *Pathé*, the movie company (20%) and the *Générale des Eaux* (10%) (Cousteau, Vincent and Luques, 1996, p. 58).

In December 96, Canal+ signed a merger agreement with Nethold but this agreement will only be effective in March 97. Nethold, number 3 of the European pay TV, is a Swiss/South-African company, subsidiary of Richemont group and MIH group. With this merger, Canal+ will be present in 14 countries. Canal+/Nethold will then be the leader of pay TV in Europe.

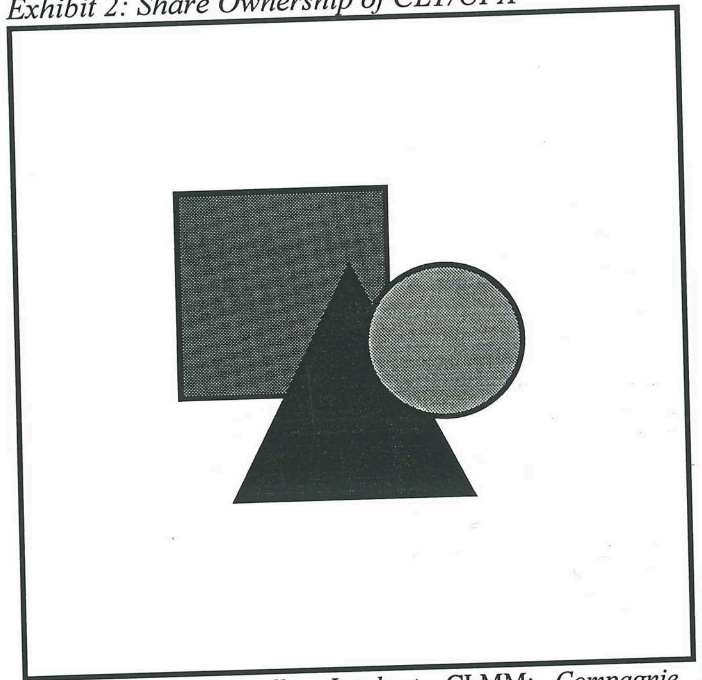
In fact, Canal+ is also present in Premiere (37.5%), the German pay TV channel, in partnership with Kirch and Bertelsmann. However, the French TV channel may sell these parts to Kirch against parts in *Telepiù* in Italy (L'Echo, 1996) in which Nethold also have parts and on which Canal+/Nethold will have the control. Moreover, Canal+ has partnership with Kirch in DF1, the digital platform of Kirch and Murdoch.

Face to this Canal+/Nethold alliance and collaboration with Kirch, Bertelsmann announced its alliance with CLT (*Compagnie Luxembourgeoise de Télévision*) through its subsidiary UFA. As shown in exhibit 2 which presents the share ownership of the CLT/UFA alliance, the situation of the satellite and digital offer in Europe is very difficult to apprehend with the cross-participations of all the actors.

TF1, the first French and even European TV channel, owned by Bouygues, launched another digital bouquet, TPS, *Télévision par Satellite*, competitor of CanalSatellite. Other partners of TPS are CLT (20%), M6 which is another private channel (20%), *France Télécom*, the national telecom operator and *France Télévision*, the public TV channel (25%) and the *Lyonnaise des Eaux* (10%). The bouquet proposes three offers: *TPS Thématique* (12 channels for the family), *TPS Cinéma* with 3 movie channels and *Tout TPS* which adds the two first offers (8).

There is a third satellite offer and as already explained, this seems to be unique in Europe. *AB Sat*, owned by the TV programs, mostly sitcoms, producer, *AB Productions*, has chosen to propose a large and cheap offer but with very few new programs (Cousteau, Vincent and Luques, 1996, p. 67).

Exhibit 2: Share Ownership of CLT/UFA



GBL: *Groupe Bruxelles Lambert*, CLMM: *Compagnie Luxembourgeoise de MultiMedia*
Source: Le Soir, 7-8 décembre 1996, p. 6

These three digital bouquets, CanalSatellite, TPS and AB Sat, have been launched quite recently and it is then difficult to assess their current success. CanalSatellite, launched in Spring 96, already counted 200.000 subscribers at the end of December 96. TPS intends to have these 200.000 subscribers at the end of 1997 (Cousteau, Vincent and Luques, 1996, p. 58). The CanalSatellite offer is more expensive than the two others but, like for Canal+, it will prefer high quality programs and exclusivity. The target public of CanalSatellite is the high-revenue class while AB Sat and TPS will target the low and middle-class revenues.

If we consider the satellite infrastructure, *Alcatel Espace*, an Alcatel subsidiary, announced its ambitious project of a high-speed global satellite infrastructure, Skybridge, that will be launched by 2001. This European initiative will compete with already existing US systems (ISPO, 1997b).

3.4. Telecommunications

France Télécom is the 4th largest World telecom operator (IDATE, 1997). Despite its monopoly status, it has always been a quite innovative

and efficient firm comparing to other national telecom operators in Europe. Almost 90% of France Télécom's customers seem to be satisfied with the services offered by the operator (Curtil, 1994, p. 202). With the alliance with *Deutsche Telecom* (Atlas) then with the US Sprint (Global One) and in other countries (9), *Franc e Télécom* positions itself as one of the most important telecom actors on the European scene.

France Télécom has been one initiator of Minitel, one of the most successful videotex applications created in the late 70's and which counts today almost 7 millions of terminal and 16 millions of users. One of the reasons of this success, despite the importance of the state intervention, is the tarification with the 'kiosk' system where the user only pays once to *France Télécom* which distributes the profits to the service provider after removal of its own part and of some fix costs. Since the diffusion of Internet in France, *France Télécom* is improving the Minitel offer through new terminals or through the Wanadoo service which makes possible to access Minitel through Internet.

France Télécom operates the first mobile network in France (Itineris), has opened a multimedia section since July 96 (*France Télécom Multimedia* - FT2M), owns 26% of the cable market in France (Arlandis, Laubenheimer, 1996), participates in numeric bouquets (TPS) and concludes partnerships with program and content editors or with thematic TV programs. Endly, *France Télécom* participates in 31 of the 244 projects of Information Highways experimentations in France (see 3.6.4.).

In June 96 , the French Parliament has voted a law modifying the status of the national operator which will turn into a incorporated company and will allow private shareholders to acquire 49% of its capital.

The *Compagnie Générale des Eaux* (*CGE*), the utilities, property and communications group, will probably become the second largest operator in France. This company is a cable-operator through CGV, it is already providing the second mobile telephone network (SFR) and with its telecom subsidiary company *Cégétel*, it would become one of the most important competitor of France Télécom after 98. Indeed, CGE has been allied to Unisource, the international telecom consortium in Siris until 96 and *Cégétel* has now concluded a strategic alliance with British Telecom (25% of the stakes), the German Mannesmann (10%) and SBC, a Baby Bell. Moreover, CGE is also present in the audio-visual sector through almost 23% in GBL (see exhibit 2) and more than 20% in Canal+ (but this could change due to the new alliance between Havas and CGE -see below). CGE is also interested by SFP (*Société Française de Production*) which is the main TV operator in France . Recently, CGE has conclude an alliance with Havas, with which it already collaborates in Canal+, for the creation of a big French multimedia pole (ISPO, 1997a). Due to its different activities in the multimedia field and to the recent alliances, CGE could become one of the most important competitors of France Télécom in the following months and years.

The third mobile network is operated by *Bouygues Télécom*. Bouygues is a well-known and important building company which already acts in the audiovisual sector with TF1, the first private French TV channel and Ciby 2000, a movie production company. *Bouygues Télécom* has also created a multimedia department and has concluded a strategic alliance with STET, the Italian telecom operator. Veba and Cable&Wireless are already represented in *Bouygues Télécom*.

The *Société Nationale des Chemins de Fer Français (SNCF)*, owner of an important alternative infrastructure of 27 900 km (Curtil, 1996, p. 204), is also entering the telecom sector, partly with its telecom subsidiary, *Télécom Développement*, created in January 96. For this new activity, SNCF has chosen *Cégétel*, CGE's telecom subsidiary, in order to exploit its private telecom networks (ISPO, 1997b). Concerning its network, the SNCF could lend part of it to other operators, maybe mobile operators, like it is already the case for SFR (Curtil, 1996). With national railroad companies in other European countries, the SNCF participated in Hermes Europe Railtel which could provide a huge European network (Curtil, 1996).

3.5. Key Players in Other Sectors

3.5.1. Reflection Actions

In order to help the development of new multimedia services, some reflection actions were initiated by the private sector like the *Groupe Inter-Industries sur les autoroutes de l'information* (GII). Created in September 95 with the help of the Ministry of IT and Post, this group of reflection gathered 41 members (10) from th e banking sector (11), comput er constructors (12), consul ting and software companies (13), teleco m and cable operators (14), press and audiovisual (15), import ant users (16), resear ch and public institutions (17) and dis tribution sector (18). In fac t, this lobby group open to private companies, administrations and local institutions, already counts almost all the important actors from the multimedia and Information Highways sector in France mostly from the supply side but also from the demand side. Its aim is '*to promote and accelerate the development of Information Highways in France and the opening to Europe and the world*' (19), to rea lise studies and research in priority domains (20) if such studies and

research are not already made elsewhere and to make recommendations to public bodies (21).

It is also worth underlining another private initiative, le *Manifeste de l'Arche*, which aim is to promote the diffusion of ICT and Information Highways in particular and to launch a public debate on these subjects (22). Th is manifesto has been written in November 93 by almost 15 actors from different worlds: electronic commerce, banking, research, consultancy, ..., which creates le *Club de l'Arche*. This group of reflection also made different suggestions and recommendations to public bodies based on a positive view of ICT and on their impact on the development of the country. In fact, it seems that the main priority of this Club and of this Manifesto is the diffusion of electronic commerce in France.

Linked to this *Manifeste*, managed by one of its founders and sustained by a major bank (*Compagnie Bancaire*), *l'Atelier* is another place of reflection and of technological forecasting which proposes publications and organises meetings with innovators from all over the world in order to know the best practices in the field of ICT, multimedia applications and Information Highways.

3.5.2. Press, Edition and Publicity

As already mentioned, *Havas* owns Canal+, the pay-TV channel with CGE. CGE and Havas could also enter in SFP's capital. At the end of 1995, Havas acquired *Générale Occidentale*, the media pole of Alcatel Alsthom. Moreover, as shown in exhibit 2, Havas participates in CLT and according to Cédric Curtil (1996), audiovisual is Havas' main strategy. But Havas also proposed on-line services.

Concerning the publicity sector, Havas owns ODA, which manages publicity in all telephone inventories and then also the electronic inventories. ODA and Havas have created *Havas Media Communication* which could have an important role on on-line and interactive publicity (Curtil, 1996).

The second important actor concerning multimedia in the press and edition sector is *Hachette*, subsidiary of *Lagardère Groupe*. Hachette owns a lot of well-known edition firms like Fayard, Grasset, *Lattès*, *Calmann Lévy*, *Le Livre de Poche*, Marabout, Grolier (in the States), as well as a lot of school editors (Curtil, 1996). Concerning multimedia, its develops mainly off-line services like interactive CD-Rom, mainly for the general audience and especially for the education world. But Grolier is also active on the on-line sector through an Internet offer (*Club Internet*). According to Cédric Curtil (1996), Hachette is interested by two continents for the diffusion of its multimedia products: the States (via Grolier) and Europe.

For the diffusion of its products, Hachette faces the problem of the low equipment level of French households concerning CD-Rom PCs and the problem of the mass profitability of French products. The fact is that usually, most French citizens do not understand foreign language or are not interested by foreign products but that, due to the low equipment level, the French market is quite small. It may then be interesting to search for alliances on the distribution or production level with other French-speaking countries like Québec (6 millions of inhabitants) or Belgium (almost 5 millions of French-speaking people). However, according to the Miléo report (1996), it seems that the situation is getting better and better either concerning the number of PCs with CD-Rom or with the offer and sales of CD-Roms. But theFrench market of CD-Roms seems to be rather concentrated. In 1995, 100 titles represented 50% of the market and 12 titles were sold at more than 10.000 exemplars (Miléo, 1996, p. 180). The CD-Rom about the famous museum, *Le Louvre*, was for example sold more than 70.000 times (Miléo, 1996, p. 180).

Finally, *France Télécom* has announced the creation of a new subsidiary specialised in multimedia publishing, *France Télécom Multimedia Edition*, which will propose CD-Roms and on-line services (ISPO, 1997b).

3.5.3. Electronic Commerce - Teleshopping

There are a lot of initiatives in the field of electronic commerce in France: *Club de l'Arche* and ArcheNet, Kleline, Globe Online, AFCEE (*Association Française pour le Commerce et les Echanges Electroniques*). Some of the actors present in these initiatives are the same and were already in EDI public initiatives.

Indeed, the *Club de l'Arche*, for example, created in 93 and which counts almost the same actors as the ones who wrote the *Manifeste de l'Arche* (for the diffusion of Information Highways and ICT in France) is close to *l'Atelier*, a reflection and prospective group sponsored by the *Compagnie Bancaire*.

In March 96, the *Club de l'Arche* has founded *AFCEE*, the French association for Electronic Commerce and Exchanges (23), with E DIFRANCE, the organism responsible for the diffusion of EDI in France, MERCATEL, an association of 100 enterprises of the commerce and distribution sector and AFTEL, the professional association of the telematic sector (24). Ap art from awareness campaigns, the aim of this association is the diffusion of information about best practices in

electronic commerce, the stimulation and the support of pilot projects and trials and the provision of an open forum for co-operation and discussion. AFCEE is also close from *l'Atelier*.

Apart from *l'Atelier*, the *Compagnie Bancaire* is an important actor of the electronic commerce world in France. In January 96, in association with LVMH (*Moët Hennessy Louis Vuitton*), a company specialised in luxury products, the bank created Kleline, the system for on-line secure payment on the Net which is used on some virtual shopping centres like Globe Online, the first one in France.

In fact, if the actors are quite the same as in public EDI, it seems that while it has taken some years in the EDI field to make things change, for example through the establishment of lobby and reflection groups and also of action groups, the move in electronic commerce seems to be quite more rapid.

Concerning mail order, the leaders of the sector, *3 Suisses* or *La Redoute* for instance, do also propose electronic commerce, via Minitel, Internet or CD-ROM. But at the present time, they do not seem to be interested in teleshopping via TV.

At the level of teleshopping, there are three important actors in France (Breton, 1994) but there is no teleshopping channel at the present time:

- *Téléshopping* owned by TF1, the first private TV channel and PBRK;
- Home Shopping Service owned by the Swedish Kinnevik, PBRK and Lyonnaise des Eaux;
- Welcom Internationale.

3.5.4. Banking Sector

According to Cédric Curtil (1996), the *Compagnie Bancaire* could be *'the bank of the French infohighways'* (p. 215). In fact, as already explained, this bank supports *l'Atelier* and participated in the development of Kleline, the system for on-line secure payment on the Net. The bank, related to Paribas, an important French banking group, also proposed on-line banking services, i.e. banks without office (*Banque directe*). In fact, according to Cédric Curtil (25), there will probably be banks devoted to a role of intermediaries of electronic commerce, like the *Compagnie Bancaire*, and other banks only proposing on-line services like it is more and more the case.

3.5.5. Education and Research

The government announced in March 96 its will to offer a ISDN access to 11 500 schools at the telephone tariffs. It also wants to put 700 schools in network via RENATER (see below) (Girard, 1996). Education has been presented as a priority domain for the development of multimedia and Information Highways.

An education and research network already exists for research since a lot of years. Contrary to the Belgian situation where Belnet, the academic and research network, is funded by the government and thus entirely free for universities, *RENATER* is financed by its users: *'private enterprises or public users which have an activity in the field of education, research, medical research, industrial research, technological development, supply of scientific, technical, medical, cultural or administrative information'* (26). No exc lusively commercial traffic is allowed on RENATER which counts almost 500 connected sites (27).

Concerning distance learning, the *CNED, Centre National d'Enseignement à Distance*, is the first institution of this kind in France with almost 350.000 users (28). During many years, distance learning meant correspondence course, sometimes with audio and video K7. Now, CNED is proposing educational software on CD-Rom, on diskette or interactive videotransmission for specific publics from *Futuroscope*, the advanced technology centre (29).

Endly, *Computer Channel*, a subsidiary of *France Télécom*, proposes a professional TV channel on computers and telecoms for the private companies (Breton, 1994, p. 194) but, in general, the distance learning through telecom networks or CD-ROM supports is not very well diffused in France maybe because of the lack of equipment in households but also in most schools. Measures announced concerning ISDN connection will maybe change this situation.

3.6. Public Sector Promoters

Introduction

The French government and institutions had mainly a role of co-ordinator of multimedia development through studies, calls for proposals, establishment of awareness group and regulation, especially regarding the opening of the telecom sector and the status of the national telecom operator. The government seems to have a concerted action on that field with the establishment of an interministry committee, with the

decision of putting all the Ministries on the Web but also let place to initiatives from specific ministries like the Ministry of Culture.

There is no much subsidies at the central level for multimedia initiatives, except maybe for culture or education but more and more initiatives are taking at regional or local levels by regional, general or local councils.

3.6.1. Public Institutions

There are a lot of public bodies and institutions (and acronyms!) in France and a lot of them are involved in the development of multimedia and Information Highways in this country. For example, let's quote DGPT (*Direction Générale des Postes et Télécommunications*) from the Ministry of Post and Telecommunications and ART (*Agence de Régulation des Télécommunications*) which will be created at the beginning of 97 in the course of the liberalisation of the telecom sector, DGSI (*Direction Générale des Stratégies Industrielles*), SJTI (*Service Juridique des Technologies de l'Information*), SERICS (*Service des Industries de Consommation et de Service*), ANVAR (*Agence Nationale de VAlorisation de la Recherche*), DATAR (*Délégation à l'Aménagement du Territoire et à l'Action Régionale*), INRIA, CNRS, ...

•*DGPT* currently works on the deregulation of the telecom sector. With the collaboration of the SJTI, it prepares the two laws on the liberalisation of the sector and on France Télécom's new status and it is now designing the application decrees. DGPT will change, in January 1997, into ART, quite similar to the British OFTEL.

•*SERICS*, depending from DGSI, *Direction Générale des Stratégies Industrielles*, is in charge of the coordination of the interministry works on information services and highways and has prepared the experimentation of the end of 1994 (30).

•*ANVAR*, *Agence Nationale pour la VAlorisation de la Recherche*, depending on the Ministry of Industry, is responsible for actions of research valorisation. It finances new high-tech companies and innovative projects and provides useful help to young entrepreneurs like the establishment of a business plan. ANVAR launched a call for proposals for the development of multimedia services by SMEs at the end of 96.

•*DATAR*, the department for regional planning which depends on the Prime Minister and the Ministry of the regional planning, has mainly be present through two calls for proposals in the field of teleworking launched in 1993 and in 1994 in collaboration with France Télécom. The aim of this call for proposals was the creation of teleservices enterprises and the introduction of new practices in firms, local institutions and administration (DATAR (1995), p. 242) 25% of the 225 accepted projects concerned services of general interest (training, education, administrative information, environment, health and social affairs) and 75% were commercial services (new work organisation, telemaintenance and teleassistance, telemarketing and development of exportation activities). (DATAR (1995), p. 244). DATAR seems to be an important actor in the field of multimedia and Information Highways mainly through the funding of a lot of studies for local authorities and on the impact of ICT on the city, through the set-up of training modules on multimedia or through the analysis of the reconversion of industrial sectors (automotive sector, banking, ...).

3.6.2. Preliminary Studies

The involvement of France in multimedia and Information Highways began in 1994 with the study of Gérard Théry (1994) and the one of Thierry Breton (1994) at the express demand of Edouard Balladur, past-Prime Minister. These initiatives followed the Bangemann report but mainly the Gore NII initiative. A third report was made some months later for the *Commissariat Général du Plan* (Miléo Report) and mainly concerned the problem of the public regulation of information and communication services and the role of the State in that general field.

Gérard Théry is well-known in the French telecom area. He has been director of France Télécom (former-*Direction Générale des Télécommunications* - DGT) and initiated the Minitel at the end of the 70's. Gérard Théry's main conclusion about Information Highways was the necessity of replacing all existing infrastructure by fibre optic. This statement has not been well accepted in France where the tradition is usually to use existing infrastructure for new applications and to ameliorate infrastructure when necessary but also because of the estimated cost of this investment (evaluated at FF 150 billions). Moreover, this proposal has been seen as an expressed will to reconduct *France Télécom*'s monopoly on infrastructure (Curtil, 1996). Even if it has been much criticised since its publication, the Théry report, which has been much echoed in the media, has been one of the first meeting points between the French public and the problematic of Information Highways.

At the same time, another report was made for the Prime Minister but on the services. The *Breton Report*, more technical, was devoted to the analysis of the teleservices market in France, to the offer and demand sides, to the assessment of the strengths and weaknesses of France in that

domain and to the potential of these teleservices in terms of growth and job creation. In fact, the report mainly consists of adding the prefix 'tele' before existing services. A lot of figures were proposed concerning the number of jobs created or suppressed but the method used to obtain these figures has never been explained by the author. However, one of the consequences of the Breton report has been the call for proposals concerning experimentations of information services and highways launched at the end of 94.

The report coordinated by *Thierry Miléo* for the *Commissariat Général du Plan* summarises the works of a group of experts who tried to answer to three questions:

- *'What do we know about the services that will develop/be developed in the following years?*
- *Which technologies will win the competition for the provision of these services?*
- *How could public authorities promote these services and technologies while respecting their mission of public service?'* (Miléo, 1996, p. 6)

The first two reports contributed to the diffusion of the concept of Information Highways and society towards the public audience. The third one seems more devoted to specialists of the field.

3.6.3. Interministry Committee

Different interministry committees were organised since October 94, involving almost all the French governmental departments: social affairs and health, interior and regional planning, justice, defence, external affairs, national education, economy, industry, telecoms, tourism, enterprises and economic development, employment and professional training, culture, budget, higher education and research, communication, and European affairs (press release, 24/10/94) (31). The ai m of these meetings is the design of the government policy in the field of information services and highways. The work of the committee is prepared by the Minister of Post and Telecommunications but each Ministry still has its own power of initiative in the field of multimedia and Information Highways. The objective is to have a global strategy as coherent as possible.

3.6.4. Call for Proposals concerning Experimentations of Information Services and Highways

At the end of 1994, the Minister of Post, Telecommunications and Space launched a call for proposals for the experimentation of new services on Information Highways in France. In February 95, a strategy in that field was designed. This program proposes two specific action lines. The first one was the experimentations of new services Information Highways, of innovative applications of general interest or of commercial services for firms and individuals. The second line of action was the development of technical platforms on which these new services would be proposed. The official criteria for the evaluation were:

- *'the degree of technical or industrial innovation, of use or content innovation;*
- *the involvement of users in the projects;*
- *the technical, financial, industrial and economic feasibility and viability of the projects;*
- *the societal interest (social, cultural and economic dimensions, regional development, training, quality of life, ...) and the regional, European and intern ational dynamic'* (32).

635 projects were proposed by the main actors of this sector. In October 95, 170 of these projects are accepted by the interministry committee of the Information Highways and 74 more are accepted in March 96.

The government does not financially help the development of all these 244 projects. Most of the projects accepted receive an official label from the government, a serious token that may help the promoters in finding partners and financing. Some of them receive a funding for the Ministry of Post and Telecommunications in the form of R&D funds (50 MF in 95, 270 MF in 96) (press release, 27/03/96) (33).

These 244 projects concern different themes: development of infrastructure (platform), education and teleteaching, teleservices in general (34), culture, marketplace (principally EDI applications), audiovisual, edition, health, administration, research, transports and tourism. Table 3 shows the distribution of the projects amongst these themes.

Table 3: Distribution of selected projects per theme

Platform	70	28.7%
Education/Teleteaching	39	16%
Teleservices	36	14.7%
Culture	15	6.2%
Marketplace	15	6.2%
Audiovisual	14	5.7%
Edition	13	5.3%
Health	12	4 .9%
Administration	10	4.1%
Re search	8	3.3%
Transports	8	3.3%
Tourism	4	1.6%

•*Source:http://www.telecom.gouv.fr/francais/activ/techno/autox74.htm, http://www.telecom .gouv.fr/francais/activ/techno/autox170.htm*

Many of these projects (34.4%) have a national extent as shown by table 4 but they are also disseminated in different areas with a dominance of the regions with cities of more than 200.000 inhabitants (Marseille, Paris, Lyon, ...). It is not clear if this regional aspect was taken into account in the evaluation of these projects.

Table 4: Distribution of selected projects per region

National	84	34.4%
International	29	11.9%
P.A.C.A. (Marseille)	23	9.5%
Ile de France (France)	17	7%
Rhône-Alpes (Lyon, Grenoble)	16	6.6%
Lorraine (Metz, Nancy)	9	3.7%
Midi-Pyrénées (Toulouse)	8	3.3%
Aquitaine (Bordeaux)	7	2. 9%
Nord-Pas de Calais (Lille)	6	2.5%
Bretagne	6	2.5%
DOM-TOM	5	2.1%
Pays de Loire	4	1.6%
Alsace	4	1.6%
Languedoc-Roussillon	3	1.2%
Haute-Normandie	3	1.2%
Poitou-Charent e	3	1.2%
Champagne-Ardennes	2	0 .8%
Basse-Normandie	2	0.8%
Corse	2	0.8%
Franche-Comté	2	0.8%
Centre	2	0.8%
Bourgogne	2	0.8%
Picardie	2	0.8%
Auvergne	2	0.8%
Limousin	1	0.4%

•*Source: http://www.telecom.gouv.fr/francais/activ/techno/autox74.htm, http://www.telecom .gouv.f/francais/activ/techno/autox170.htm*

According to Cédric Curtil (35), this c all of proposals eased the emergence of useful and viable projects, eventually innovating but not all of them. In some cases, it allows to make a first "liberalisation test" like in Nice, on the French Riviera, where there are Internet trials on the cable infrastructure. But a first assessment of these projects underlines that some of th em have turned towards Internet while they had larger ambitions. Moreover, the publicity around this call for proposals and its results have provided useful information concerning the actors of this domain and their potential strategies and gave rise to exchange of ideas, to meetings between actors and endly, to collaborations.

3.6.5. Second Call for Proposals, Especially Designed for SMEs

In February 96, another call for proposals has been launched by the Ministry of Post, Telecommunications and Space, in collaboration with ANVAR for the development of multimedia applications and services by SMEs. On a total of 616 proposals, 260 have been accepted for a total financial amount of 876 millions FF for which 100 millions will be given by ANVAR as R&D funds (36). Most projects came from the following regions: Ile de France (Paris), Bretagne, P.A.C.A. (Marseille), Rhône-Alpes (Lyon, Grenoble) and Languedoc-Roussillon (Montpellier). Projects mainly concern computer security, electronic commerce, teleteaching, telemedicine and linguistic engineering (37).

3.6.6. Public Initiatives in the Culture Sector

France has an excessively important installed basis in terms of cultural content. According to Alain Minc (1995), one of the author of the well-known report on the computerisation of the society and inventor of the concept of telematics, if French culture and knowledge are digitalized in the following years, this patrimony will be marginalized or digitalized by other countries (p. 10). Moreover, the market does not seem to be able or desirous of doing this effort. The State has then an important incentive role to play in that field.

According to Philippe Douste-Blazy (38), French Minister of Culture, ICT and multimedia technologies do not threaten French language and culture and the government will sustain the creation of French-speaking contents and services on new digital supports. Concerning the audiovisual sector, France resists to the invasion of English-speaking products and especially of American products and culture (39). The 'c ultural exception' of the world-wide trade agreements during the Uruguay Round is the best example of this strategy.

But, contrary to the audiovisual sector, France does not seem to have a specific strategy of defence against English-speaking products in the multimedia field. In this domain, language does not seem to be a political stake as it is the case in Québec for example for the French language or in the Flemish part of Belgium concerning Dutch. It seems that France has a reactive position towards the invasion of foreign products, mainly American ones, and not a proactive position as if French people do not feel that their culture, language and patrimony could be threatened by the current developments in the multimedia field. However, it could be interesting to follow the results of a judicial affair implying a school for the North of France which provides information on its Web server, concerning its courses and different administrative information. This school gives courses in English and the information provided is only in English. It is currently being prosecuted on the basis of the Toubon law, from the name of a past Minister of culture who made a law concerning the use of the French language in August 94. The point here is to know if this law could be applied to information provided by French Web servers (Arseneault, 1996).

Finally, even if the French Ministry of Culture stated different priorities in that field, it does not mean that the private sector, given the low equipment rate of the French citizens, will develop mass French-speaking multimedia products because of the potential lack of profitability.

It appears that, at the present time, most problems concerning the development of cultural multimedia products focus on the question of the author rights and of the status of the multimedia creation (Miléo, 1996).

The main priorities stated by the Ministry of Culture (40) concern the standardisation aspect through the normalisation of multimedia supports, of digital TV (decoders), the presence of French-speaking experts in international standardisation bodies, the requested norms for the realisation of French and multilingual products on Internet, terminology works to adapt existing English words concerning multimedia in order to provide French words for translators. The support to the creation and diffusion of quality products is also declared as a priority through the set-up of funding for private operators, for the press sector or for public institutions like the French National Library (*Bibliothèque Nationale de France*). The French Ministry is also a producer of multimedia products in collaboration with private firms and want to implement a trial platform of access to existing databases on patrimony. Some authors (Miléo, 1996) suggest that the French State could be obliged to allow all investors to exploit the French patrimony at equal conditions and fair prices provided that the production is made in France. They also emphasise the need to take specific measures for the development of cultural industries in France.

3.6.7. Opening of the Telecom Sector

Two new laws have been voted in June 96 regarding the telecommunication sector. The first one concerns the regulation of the sector (total opening of the competition) and the second one refers to the new status of France Télécom. Applications decrees still have to be

signed. At the beginning of July 96, all the alternative infrastructure were opened to competition for telecom services already under competition.

3.6.8. Public Service and Universal Service

France has always been a defender of the general interest and of a certain concept of public service (Fillon, 1996) called *'le service public à la française'* (Miléo, 1996; Denoix de Saint-Marc, 1996). In the field of multimedia and Information Highways, it is thus a defender of the universal service, especially on the European scene, even if there is a large consensus in France that public service is more than universal service (; Denoix de Saint-Marc, 1996). However, as the public service has been proactively defined and designed as the expression of the concept of solidarity, universal service may be considered as a reaction in front of the excesses of the liberalisation process of the telecom sector. The definition of the scope of universal service in France has to be realised through the application decree that must be written and voted before the end of the year.

3.6.9. Other Central Initiatives

Moreover, the government has announced or sustained other initiatives: the adaptation of the law concerning cryptology, the reduction from 2 to 5 years of the amortization term, the possibility offered to 11 500 schools to have access to ISDN at the telephone tariffs, the networking of 700 schools before the end of 96, an Internet access at the cost of a local communication on the entire country, the support from the Ministry of Post and Telecommunications to the set up of the *Groupe Inter-Industries* and the development of WWW servers for each ministry.

Notes

1. Rassemblement pour la République.
2. THERY Gérard (1994), *Les autoroutes de l'information*, Rapport au Premier Ministre, La Documentation Française, Collection des rapports officiels, Paris, octobre 1994; BRETON Thierry (1994), *Les téléservices en France - Quels marchés pour les autoroutes de l'information?*, La Documentation Française, Paris.
3. http://www.telecom.gouv.fr/francais/activ/techno/techndem.htm.
4. http://www.telecom.gouv.fr/francais/activ/techno/techndem.htm.
5. http://www.axime.com:9000/gii/com_0296.htm.
6. DEVICTOR Bernadette, 18èmes journées de l'IDATE.
7. E-mail contact of January 5th 97.
8. AFP Press Release-SV99, 16/12/96.

9. In Belgium with Mobistar, the second mobile operator, in Poland, in Lebanon, in Greece, in Canada, ..
10. http://www.axime.com:9000/gii/giimemb.htm
11. *Banque Nationale de Paris, Crédit commercial de France, Compagnie Bancaire, Crédit local de France.*
12. Alcatel, Apple France, Bull, Dassault, IBM France, Intel, Hewlett Packard, Philips, Thomson Multimedia, Digital Equipment France.
13. Andersen Consulting, Axime, Cap Gemini Sogeti, Microsoft Europe, Sema Group, Sligos.
14. *France Télécom, Compagnie Générale de Vidéocommunications (Générale des Eaux), Lyonnaise Communications (Lyonnaise des Eaux).*
15. Canal+, Groupe Hersant, Havas, Matra Hachette.
16. EDF, La Poste, Renault, SNCF.
17. Afnor, *Direction Générale des Postes et Télécommunications, Direction Générale des Stratégies Industrielles* - SERICS, INRIA, *Ministère de l'Education Nationale, Ministère de la Culture et de la Francophonie.*
18. Galeries Lafayette, Pinault-Printemps-Redoute, *3 Suisses.*
19. http://www.axime.com:9000/gii/giiobj.htm
20. Such as medium speed telecoms, high speed telecoms, electronic commerce between firms, electronic commerce between firms and individuals, financing of the use of on-line services, access to services, legal aspects of on-line services, security (except electronic commerce), health, education.
21. http://www.axime.com:9000/gii
22. http://www.axime.com:9000/gii/giiobj.htm
23. http://www2.atelier.fr/afcee
24. http://www.cordis.lu/esprit/src/invencom.htm
25. E-mail contact of January 5th 1997.
26. http://www.urec.fr/Renater/auj/utilisateurs.html
27. http://www.urec.fr/Renater/auj/utilisateurs.html
28. http://www.cned.fr
29. http://www.cned.fr
30. http://www.telecom.gouv.fr/francais/activ/techno/technac_.htm
31. http://www.telecom.gouv.fr/francais/comdis/cp271094.htm
32. http://www.telecom.gouv.fr/francais/comdis/appeloff.htm
33. http://www.telecom.gouv.fr/francais/comdis/cp270396.htm
34. Examples: telematic application for agriculture, Yellow pages on line, database on information highways, ...
35. E-mail contact of December 4th 96.
36. http://www.telecom.gouv.fr/francais/activ/techno/aap0296.htm
37. http://www.telecom.gouv.fr/francais/activ/techno/aap0296.htm
38. Speech of May 2nd in front of the High French-speaking Council (*Haut conseil de la francophonie*): http://www.culture.fr/culture/dglf/com_min/disc-hcf.htm
39. *Sciences Humaines* (1996), "Américanisation: la résistance française, Entretien avec Richard Kuisel", hors-série, n°14, september-octobre 1996, pp. 38-40.
40. Speech of May 2nd in front of the High French-speaking Council (*Haut conseil de la francophonie*): http://www.culture.fr/culture/dglf/com_min/disc-hcf.htm

Glossary

•AFCEE
Association Française pour le Commerce et les Echanges Electroniques
French Association for Electronic Commerce and Exchanges
•ANVAR
Agence Nationale pour la VAlorisation de la Recherche

National Agency for Research Valorisation
Depending from the Industry Ministry
•ART
Agence de Régulation des Télécommunications
Telecom Regulation Agency
will replace DGPT from the beginning of 1997
•CGE
Compagnie Générale des Eaux
General Water Company
•CLMM
Compagnie Luxembourgeoise de MultiMédia
Multimedia Company from Luxembourg
•CLT
Compagnie Luxembourgeoise de Télévision
Television Company from Luxembourg
International holding, originating from Luxembourg
•CNED
Centre National d'Enseignement à Distance
National Centre for Distance Learning
•CSA
Conseil Supérieur de l'Audiovisuel
Superior Audiovisual Council
•DATAR
Délégation à l'Aménagement du Territoire et à l'Action Régionale
Delegation for Regional Planning and Action
Depending from the Prime Minister and the Ministry of Regional Planning
•DGPT
Direction Générale des Postes et Télécommunications
General Direction for Post and Telecommunications
Depending from the Ministry of Post, Telecommunications and Space
•DGSI
Direction Générale des Stratégies Industrielles
General Direction of Industrial Strategies
•*DGT*
Direction Générale des Télécommunications
General Direction of Telecommunications
Former name of France Télécom
•FT2M
France Télécom Multimedia
•GBL
Groupe Bruxelles Lambert
International holding, originating from Belgium
•*IDATE*
Institut de l'Audiovisuel et des Télécommunications en Europe
Institute for Audiovisual and Telecommunications in Europe
•INSEE
Institut National de la Statistique et des Etudes Economiques
National Institute of Statistics and Economic Studies
•SAT
Société Anonyme de Télécommunications
Telecom Incorporated Company
•SERICS
Service des Industries de Consommation et de Service

Service of Consumption and Service Industries
Depending from the Ministry of Post, Telecommunications and Space
•SFP
Société Française de Production
French Production Company
•SJTI
Service Juridique des Technologies de l'Information
Legal Service for Information Technology
•SNCF
Société Nationale des Chemins de fer Français
French National Railroad Company
•TMM
Thomson Multimédia
•TPS
Télévision Par Satellite
Satellite Television

References

Books and papers

•ARLANDIS Jacques, LAUBENHEIMER Michael (1996), 'NII, EII...FII, The French Flavour for Electronic Highways', in *Telematics and Informatics*, vol. 13, No. 2/3, pp. 157-164.
•BRETON Thierry (1994), *Les téléservices en France - Quels marchés pour les autoroutes de l'information?*, La Documentation Française, Paris.
•CURTIL Cédric (1996), *La carte française des inforoutes*, Hermès, Paris, 243 p.
•DATAR (1995), *Télé-travail, télé-économie - une chance pour l'emploi et l'attractivité des territoires*, collection IDATE, Montpellier, août 1995, 244 p.
•DENOIX DE SAINT-MARC Renaud (1996), *Le service public*, Rapport au Premier Ministre, La Documentation Française, Collection des rapports officiels, Paris.
•IDATE (1997), *Multiclient Studies on World Telecom Markets*, Montpellier.
•MILEO Thierry (1996), *Les réseaux de la société de l'information*, rapport du groupe présidé par Thierry MILEO pour le Commissariat Général du Plan, Collection Rapports Officiels, Editions Eska, Paris (called the Miléo Report in this document).
•MINC Alain (1995), 'Perspectives', in *La société face au multimédia*, rapport de la Fondation IDATE, collection IDATE, Montpellier, p. 9-10.
•THERY Gérard (1994), *Les autoroutes de l'information*, Rapport au Premier Ministre, La Documentation Française, Collection des rapports officiels, Paris, octobre 1994.

Press Articles and Releases

•AFP Press Release-SV99, 16/12/96.
•ARSENEAULT Michel (1996), "Les militants de la francophonie s'attaquent à Internet", *Le Monde*, supplément Télévision-Radio-Multimédia, Dimanche 1er - Lundi 2 décembre 1996, p. 35.
•CADORET Jean-Paul (1996), *Thomson: la nouvelle procédure de privatisation par étapes change la donne*, AFP Press Release-WS98, 12/12/96.

•COUSTEAU Libie, VINCENT Claude, LUQUES Jean-Michel (1996), "1000 chaînes, et après", *Enjeux*, décembre 1996, pp. 57-71.
•DUTHEIL Guy (1996a), "3 bouquets dans un jardin français", *Le Monde*, supplément multimédia, 15-16 décembre 1996.
•DUTHEIL Guy (1996b), "La ligne de démarcation entre le câble et le satellite est d'ordre socio-économique", *Le Monde*, 30 décembre 1996.
•FILLON François (1996), "Réussir la révolution des télécommunications", *Le Monde*, mardi 7 mai 1996.
•GIRARD Hélène (1996), "Des initiatives gouvernementales pour entretenir la flamme des porteurs de projets", *Télétravail*, juin-juillet 1996, p. 46.
•ISPO (1997a), *Information Society Trends*, Issue number 64, 28/1/97-11/2/97 (http://www.ispo.cec.be/ispo/press. html).
•ISPO (1997b), *Information Society Trends*, Issue number 65, 12/2/97-14/3/97 (http://www.ispo.cec.be/ispo/press. html).
•*L'ECHO* (1996), "Albert Frère n'entend pas se retirer du capital de CLT-UFA", 10/12/96.
•LE COEUR Philippe (1996), "Alcatel, numéro un des télécommunications mondiales", *Le Monde*, samedi 11 mai 1996.
•NEXON Marc (1996), " Thomson: Daewoo va payer le juste prix ", *L'Expansion*, n°537, 21/11/96-4/12/96.
•*SCIENCES HUMAINES* (1996), "Américanisation: la résistance française, Entretien avec Richard Kuisel", hors-série, n°14, september-octobre 1996, pp. 38-40.

URLs

•AFCEE: http://www2.atelier.fr/afcee
CNED: http://www.cned.fr
Electronic Commerce Projects: http://www.cordis.lu/esprit/ src/invencom.htm
GII: http://www.axime.com:9000/gii
Info rmation Society Trends: http://www.ispo.cec.be/ispo/press. html
Ministry of Post, Telecom and Space: http://www.telecom.gouv.fr
Renater: http://www.urec.fr/Renater /auj/accueilauj.html
Speech of the French Ministry of Culture: http://www.cultur e.fr/culture/dglf/com_min/disc-hcf.htm

Interviews and E-Mail Contacts

•Interview with Jacques Arlandis, scientific director of IDATE (Institut de l'Audiovisuel et des Télécommunications en Europe) research centre specialised in the field of audiovisual, telecommunications and ICT - Montpellier - 8 November 96.
•Interview with Laurent Gille, president and general director of Sirius, consulting firm in the field of ICT and telecommunications - Montpellier - 8 November 96; e-mail contacts.
•E-mail contacts with Cédric Curtil, author of the book '*La carte française des inforoutes*".
•E-mail and phone contacts with André Veyret from Idate.